

REMARKS

By this Amendment, Applicants propose amending claims 1, 7, and 15 to more appropriately define the invention.

In the Final Office Action ("FOA"), the Examiner rejected claims 1-21 under 35 U.S.C. § 103(a) as unpatentable over Murai et al., U.S. Patent No. 5,250,812 ("Murai") in view of Watanabe et al., U.S. Patent No. 6,335,898 ("Watanabe") and further in view of Shibata et al., U.S. Patent No. 5,371,373 ("Shibata"). In response, Applicants respectfully submit that a *prima facie* case of obviousness has not been established because the cited references fail to teach or suggest all the claim elements.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim elements. Furthermore, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. § 2143.03 (8th Ed., Aug. 2001), (quoting *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970)). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Third, there must be a reasonable expectation of success. *See* M.P.E.P. § 2143 at pp. 2100-122 to 127.

Claim 1 is directed to a charged beam exposure for delineating patterns of a system on a substrate to describe the system in a logic expression, to convert the logic expression into a connection of standard cells, and to delineate patterns of the standard cells on the substrate comprising a combination of elements including, *inter alia*, "standard cell library recording means for recording a standard cell library having an information configured for designing the

pattern of the system by using the standard cells and first placement positions of the shaping holes on said CP aperture related to the standard cells corresponding to the shaping holes.” Independent claim 7 is directed to an exposure pattern data generation apparatus and includes similar recitations.

By contrast, Murai is directed to an electron beam lithography apparatus. Murai discloses that the apparatus comprises an electron gun 21, electron lenses 23 and 24, deflection lenses 25 and 26, and first and second aperture plates 29 and 210. *See* Murai, Fig. 2. Murai discloses that the second aperture plate includes apertures for forming shapes based on CAD data. Murai, col. 4, lines 3-50. The Examiner alleged that Murai’s CAD data corresponds to the standard cells as claimed and that Murai’s aperture corresponds to the character projection aperture. (FOA at pp. 3-4). Applicants, however, assert that Murai fails to disclose a standard library, as recited in claims 1 and 7.

Murai discloses that the CAD data corresponds to data of non-repetitive pattern and repetitive patterns. The CAD data is determined by dividing design data into random patterns and repetitive patterns. Murai, col. 4, lines 11-21. A computer system then resizes the repetitive pattern into various shapes and sizes which form an aperture. Murai, col. 4, lines 41-45. Thus, Murai’s CAD data corresponds only to the general information of the repetitive pattern and non-repetitive patterns.

Therefore, Murai fails to teach or suggest at least a charged beam exposure comprising, *inter alia*, “standard cell library recording means for recording a standard cell library having an information configured for designing the pattern of the system by using the standard cells and first placement positions of the shaping holes on said CP aperture related to the standard cells corresponding to the shaping holes,” as recited in claims 1 and 7.

Moreover, Watanabe fails to teach or suggest these claim elements. Watanabe is directed to a semiconductor chip having data input/output lines and a logic circuit integrated on a single chip. Watanabe discloses the design schematic of the semiconductor chip. *See* Watanabe, Figs. 1 and 2. However, Watanabe does not disclose a method of forming the chip or a charge beam device which could be used to form the chip. Therefore, Watanabe fails to teach or suggest at least a charged beam exposure comprising, *inter alia*, “standard cell library recording means for recording a standard cell library having an information configured for designing the pattern of the system by using the standard cells and first placement positions of the shaping holes on said CP aperture related to the standard cells corresponding to the shaping holes,” as recited in claims 1 and 7.

Furthermore, Shibata fails to teach or suggest these claim elements. Shibata is directed to an electron lithography method. However, as in Murai, Shibata teaches that the lithography patterns are separated according to repetitive and non-repetitive patterns, but does not disclose a standard library as recited in the claims. *See* Shibata, Fig. 1.

Thus, Murai, Watanabe, and Shibata, when taken alone or in combination, fail to teach or suggest all the elements of claims 1 and 7. Thus, a *prima facie* case of obviousness has not been established for claims 1 and 7. For at least this reason, claims 1 and 7 are allowable.

Claims 2-6 are allowable at least due to their dependence from allowable claim 1. Claims 8-14 are allowable at least due to their dependence from allowable claim 7. “If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.” M.P.E.P. § 2143.03 at p. 2100-126, (citing *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988)).

Furthermore, claim 15 is directed to an exposure pattern data generation method for delineating patterns of a system on a substrate to describe the system in a logic expression, to convert the logic expression into a connection of standard cells, and to delineate patterns of the standard cells on the substrate, comprising a combination of elements including, *inter alia*, “recording a standard cell library having an information configured for designing the pattern of the system by using the standard cells and first placement positions of the shaping holes on said CP apertures related to the standard cells corresponding to the shaping holes; conducting logic synthesis for the Character Projection (CP) apertures using the standard cells corresponding to the shaping holes placed at first placement positions on the respective CP apertures on the substrate based on the standard cell library.”

As mentioned above, Murai, Watanabe, and Shibata fail to teach or suggest at least an exposure pattern generation apparatus in which a standard cell library as recited in the claims. Since Murari, Watanabe, and Shibata, fail to teach or suggest a system using the standard cell, they also fail to teach or suggest at least an exposure pattern data generation method using the standard cell library. Thus, a *prima facie* case of obviousness has not been established for claim 15. For at least this reason, claim 15 is allowable.

Claims 16-21 are allowable at least due to their dependence from allowable claim 15.

See M.P.E.P. § 2143.03 at p. 2100-126

Applicants respectfully request that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-21 in condition for allowance. Applicants submit that the proposed amendments of claims 1, 7, and 15 do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and

their relationships claimed were either earlier claimed or inherent in the claims as examined.

Therefore, this Amendment should allow for immediate action by the Examiner.

Furthermore, Applicants respectfully point out that the final action by the Examiner presented some new arguments as to the application of the art against Applicants' invention. It is respectfully submitted that the entering of the Amendment would allow the Applicants to reply to the final rejections and place the application in condition for allowance.


Finally, Applicants submit that the entry of the amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: August 7, 2003

By: 

Bryan S. Latham
Reg. No. 49,085

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com